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Synthesis and characterization of nanoporous silica for drug delivery system**Talib M Albayati**

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At present, the most common ways of delivering drugs to humans are oral administration and injection. However, these methods have lower efficiency for some therapies. Some therapeutic agents are unstable or poorly soluble drugs; therefore, new delivery systems are currently required. The concentrations of drugs to be delivered can be considerably increased by using nanomaterial which acts as drug delivery vehicles that controlled and enhanced the efficacy of the drugs by improving the adsorption capacity and release properties of the drugs. Recently, silica-based mesoporous materials are applied in biomedicine as biomarkers, enzyme supporters and biosensors. The mesopores silica materials are tunable since the pore size can be preserved at the optimum narrow size distribution according to the size of the active agent. Therefore, these materials are ideal matrices for certain applications such as drug immobilization and controlled release. Fig. 1 shows a schematic illustration of controlled release of a molecule from the pores of the nanoporous oxide SBA-15.

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